TRACTOR SNOWPLOW VTS2403F

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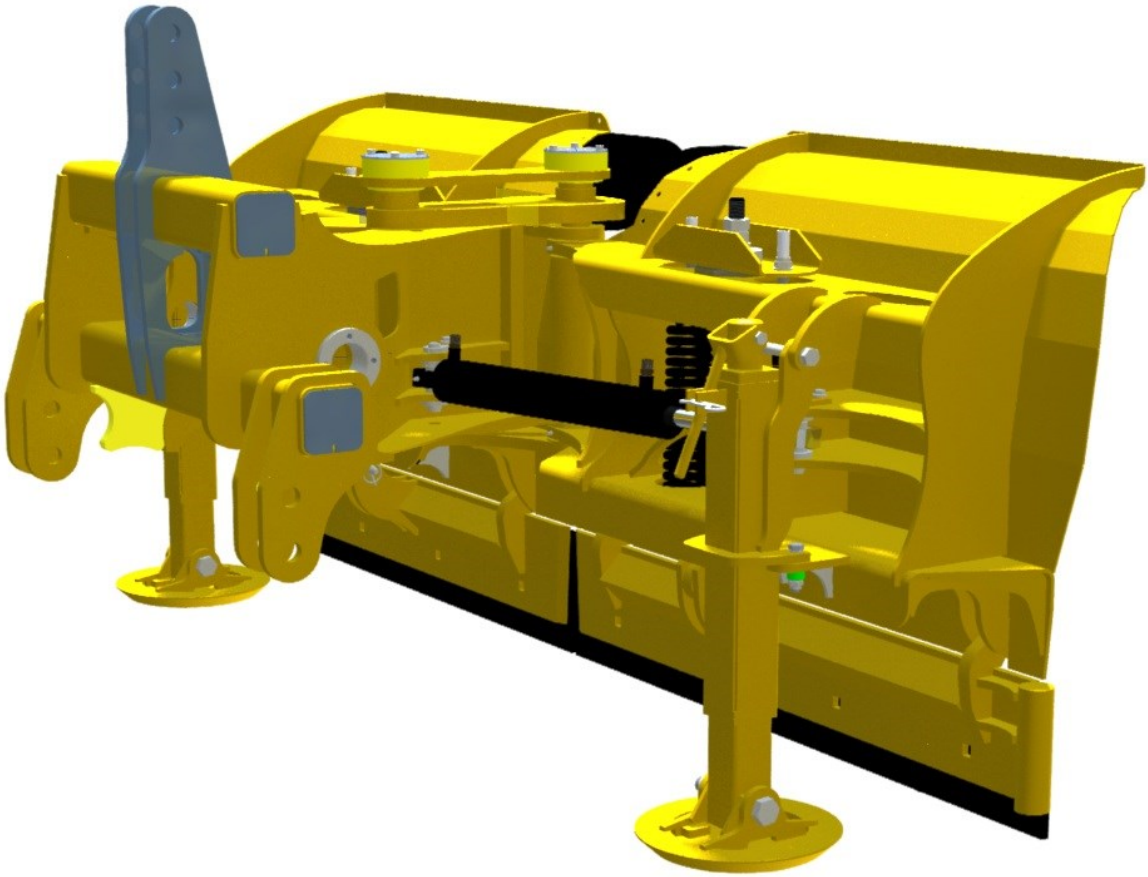

USER MANUAL

2013/2014

This user manual applies to all snowplows from serial number 0891XXXXXX

MEIREN SNOW
Push your limits. Expand your boundaries.

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CE DECLARATION OF CONFORMITY

Manufacturer: Meiren Engineering Ltd.
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Phone +372 682 5002
www.meiren.ee

We hereby declare that the abovementioned product:

Tractor snowplow

MEIREN SNOW VTS2403F

Model: .....

Serial number: .....

Manufacturing date: .....

meets the following directives and standards:

2006/42/EÜ (Machinery Safety);
EN 292, EN 349 (Machinery Safety);.

Time and place 24. October 2013, Tallinn

FOREWORD

Thank you for choosing the Meiren Snow product. This operator manual consists of technical specifications, user and maintenance instructions and warranty terms and conditions for TSP series snowploughs. TSP series snowploughs are designed for clearing loose snow from hard-paved roads. The product is not suitable for clearing sand, gravel, compacted snow, ice, etc. Using the plough contrary to its intended purpose may cause economic losses and bodily injuries. It is therefore of the utmost importance that the person operating the plough read through the manual and use the product pursuant to the requirements. Any misuse of the product releases the manufacturer from the liability for occurred damages and for reimbursing losses.

GENERAL SAFETY REQUIREMENTS

As the construction of the product is complex and it contains moving parts, it is of the utmost importance that the person working with the equipment be aware of all safety risks. To reduce the risks it is important that

- the operator have read through the operator manual;
- the operator have been given an appropriate training, which gives him the permit to use a product of this type in his work;
- the operator have been provided with all necessary tools and is wearing suitable working clothes.

PERSONNEL

This product may only be used and maintained by properly trained personnel. The operator's employer is obliged to ensure fulfilment of all user instructions and safety requirements stipulated by the manufacturer.

Before starting work with the plow, please be sure to read carefully through the operator's manual

1. PRODUCT DESCRIPTION

Snowplows VTS are centrally articulated V-plows. These are plows with an advanced spring mechanism and blade holders with adjustable angles to be installed in front of tractors or front-end loaders. Indices 2400 is used in the marking of the plow show the approximate total width of the cutting edge of the blade in millimetres. Models designed for front-end loaders are marked with the letter "F".

The **new spring mechanism** on the plows is designed to reduce the impact caused by uneven roads. The advantage of the system is the possibility to adjust separately **the cutting angle of the cutting blades** in relation to the road and the tension of the springs, i.e. **stiffness of the cutting blade** (see chapter "Adjusting the plow"). It might be necessary in case steel and rubber cutting blades are used alternatively. As **the rotating point of the cutting blades** is located slightly afore the work surface of the cutting blade, in case hitting an obstacle the cutting blade, when inclining backwards, will also start to rise up immediately, ensuring thus fast and smooth passing around the object. In case of a traditional set-up of the rotating point (behind the plow), the cutting blade first moves down, causing the entire plow to rise and only thereafter will move upwards. The result, especially when using **cutting blades made of steel**, is more impacts, which in their turn reduce the work quality of the plow. The plow moldboard is fixed on the frame with **SKF spherical sliding bearing,** which is responsible for rotating of the plow moldboard with cylinders and lateral inclination of the plow in case of varying road inclinations. The plow is manufactured using high-tempered steel. Polyurethane paint is used as a finishing agent, as it is more resistant to corrosion than regular paint. Before paintwork the elements are treated with a shot blasting all other fastening elements are galvanized.

If you use steel cutting blades, there is an option to equip the plow with slide shoes available as additional equipment. The additional equipment also includes hydraulic distributors to control the plow.

	VTS2403F
Total width of the plow flap blades, mm	2450
Total with of the plow, mm	2550
Max height of the plow flap (including blades), mm	900
Working width of the plow flap at max rotary angle, mm	2020
Max rotary angle of the plow (to both sides)	35°
Total mass of the plow (without blades and accessories),kg	530

Table 1. Technical specification of the plow

1.1. Integrity of the snow plow with standard equipment

- Snowplow with pivot cylinders (2 pcs)
- Hoses including quick connection nozzles ½" "MAN"
- 2-section spring mechanism
- Blade angle adjustment possibility
- Bladeholder spring tension adjustment possibility
- Safety markings (reflector films on the front and rear of the plow)
- Fixing plate according to the vehical (tractor)
- Colour: yellow, RAL 1007

1.2. Accessories

- Set of rubber- or steelblades
- Slide shoes with adjusting mechanism
- Impact relief valve for pivot cylinder with hydraulic battery
- Electric divider for hydraulic lines

2. SAFETY REGULATIONS FOR WORKING WITH THE PLOW

Before operating the plow:

- Check the integrity and the technical condition of the plow. It is not permitted to begin work with a device that is not in technically good condition.
- Check that there are no people or objects in the vicinity that the plow may harm. The safety of people must also be ensured during maintenance and repair works and while moving the plow with

the help of hydraulics or some other lifting device. In the event of failure to adhere to the safety regulations, the plow may cause injuries (there is a safety marking on the plow, see figure 1),

- It is prohibited to work under a lifted plow if the plow is not supported.
- Check that the plow is firmly attached to the wheel loader and that the fastenings are not damaged.
- Check that the safety marking, position lamps (if applicable) and reflex reflectors are in order and visible.
- Check the operational order of blades and support legs (slide feet). The cutting edges must be adjusted, reversed or replaced latest when the distance between the cutting edge and the fastening openings is less than 25 mm
- Check the fastening wedges of the blades.
- Check the fastening pins of the levers and cylinders.
- Check that the hydraulic hoses are sound and fastened correctly.
- Check that the plow has been thoroughly lubricated.

Operating the plow:

- The plow may be operated by a person who is at least 18 years old, has a driver's license for the relevant category and has familiarized oneself with the user manual for the snowplow.
- Always be aware of your surroundings and other traffic, including vehicles approaching from side roads and behind you. Be mindful of pedestrians and cyclists so that you do not put them in danger while operating the snowplow. All warning lights must be switched on while operating the snowplow!
- Observe the general traffic regulations.
- The maximum permitted working speed for the plow under normal road conditions is 35km/h
- Be mindful of the road conditions: reduce speed during thaw, observe the wind direction in case of powder snow and reduce speed if necessary.
- **The plow may only be used to push loose snow! It is prohibited to plow ice, frozen snowdrifts, stones, gravel, sand, etc. It is also forbidden to use force (inertia) to push snow drifts and snow walls as this may result in mechanical damages caused by overload.**
- It is forbidden to push snow outside road boundaries!
- It is forbidden to fasten additional equipment on the hydraulically moving parts!
- It is forbidden to use hydraulically operating equipment as a lifting jack!
- The plow is provided with lifting eyes on the moldboard. It is forbidden to lift the plow from any other points!

Every time something happens during working with the plow that could damage the device, a device inspection shall be organized to establish and assess potential impairments. Damages (cracks in the structure or welding, deformed details) may danger property and people's health. It is prohibited to continue operating the device, unless the damages have been repaired.

Figure 1. Safety marking: RISK OF ACCIDENT!

3. MOUNTING AND DEMOUNTING OF A PLOW

3.1. Working with the plow

The plow may be used to clean streets (with or without covers), pavements, parking lots and roads. Avoid running into obstacles. During plowing the interim frame (the fastening frame which connects the plow with the vehicle) of the plow shall be crosswise to the ground 90°±3°. Only then the plow can copy the surface of the road. During plowing the plow shall not be exposed to the weight of the tractor. During driving the plow should be lifted up from the ground at least 250 mm. After finishing work let the plow rest on the ground. **Do not leave the snowplow lifted up!**

3.2. Mounting the plow

A plow for the front-end loader (marked as "F") is provided with a fastening mechanism determined by the customer and **installation of such a plow is similar to the installation procedure of the bucket or any other equipment used by the customer.**

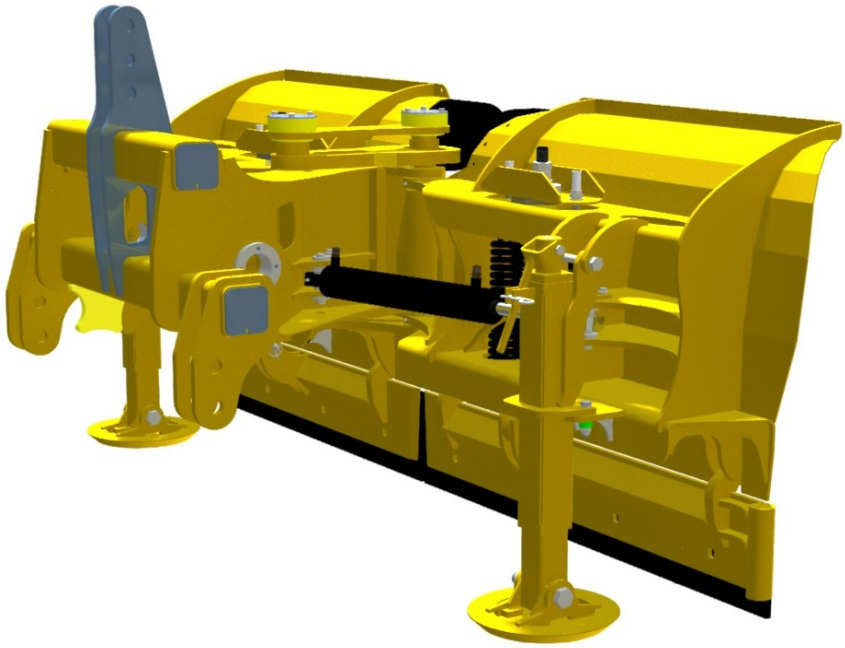

Figure 2. Snowplow VTS2403 front linkage midframe system

Below is the example how to mount and demount the plow in case of front linkage midrafeme system

Mounting shall be performed on level surface!

- Drive the tractor as close to the lifting frame of the snowplow as possible and connect the hydraulic hoses to the vehicle's quick couplers.
- Raise the plow's midframe until the lifting eyes are at corresponding height to mount the midframe to tractor's fittings (e.g. front linkage system)
- Guide the tractor frame next to plow frame and attach the plow.
- Check that the connection ears are correctly located and lock the plow frame with fastening bolts or pins on the tractor's fastening plate (different fastening systems may have different locking systems).

Demounting the plow from a tractor:

- Loosen the fastening bolts or pins of the front linkage midframe of the tractor.
- Loosen the plow with front linkage midframe from the tractor.
- Disconnect the hoses and drive further.

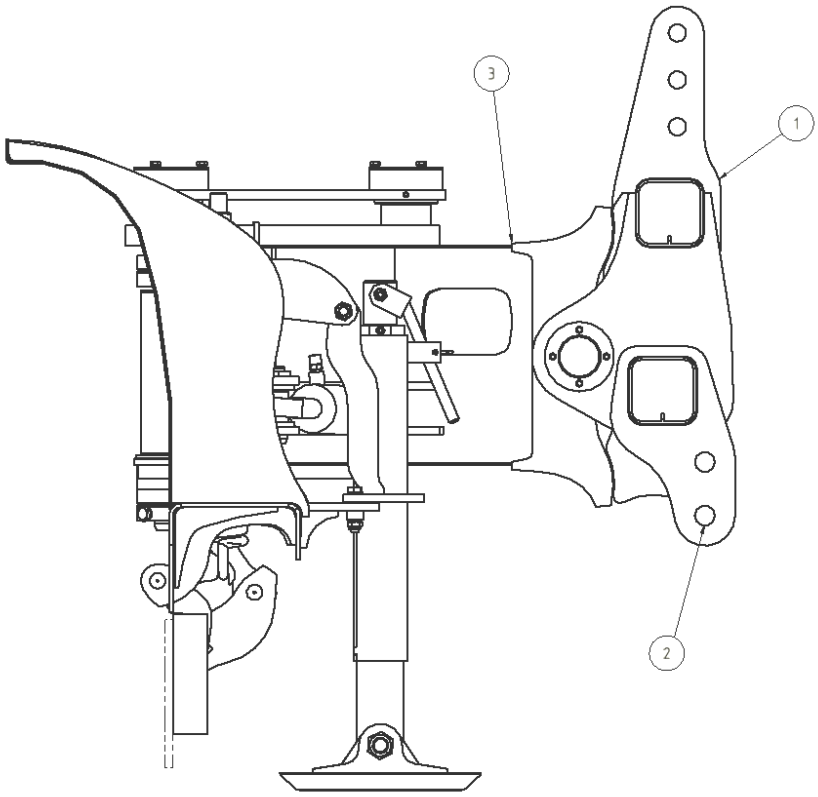

Figure 3. Mounting snowplow VTS2403F with front linkage midframe

3.3. Adjutsing the plow

See figure 4!

The cutting angle of the blades (1, Figure 4) of the plow and tension of the springs (3) can be adjusted separately. To change the cutting angle adjust the spring's nuts (5) of the spring mechanism pusher (2). After adjustment lock the nuts properly. When working with the steel cutting blade it is recommended that the cutting blade is slightly inclined forward (approx. 10°) but when using a rubber cutting blade the cutting blade must be crosswise in relation to the ground or even slightly inclined backwards, to prevent jumping movements of the plow (rubber is flexible).

For adjusting the spring tension tighten the nuts of spring pullers (4).

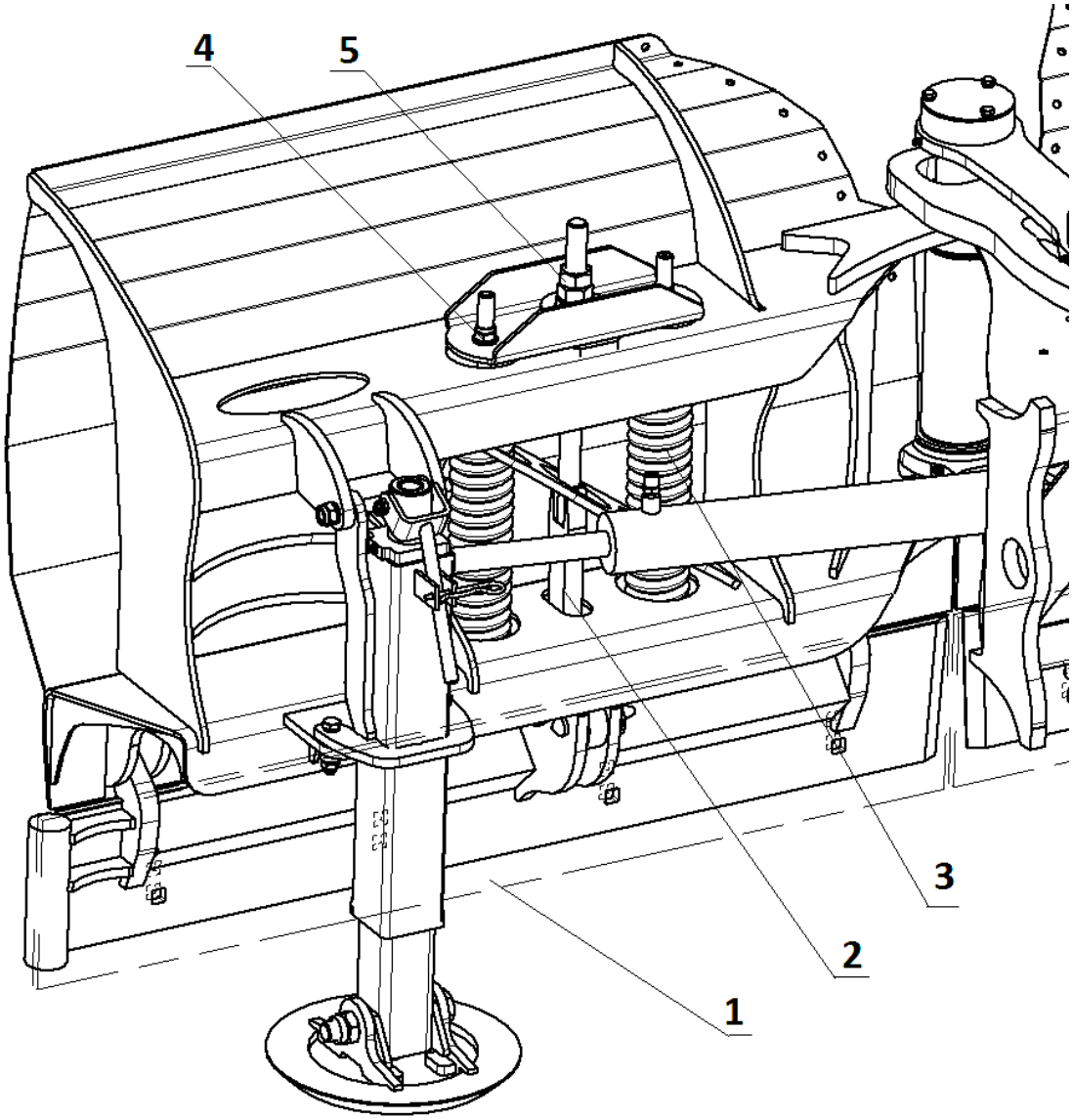

Figure 4. Adjutsing the snowplow VTS2403F blade

4. MAINTENANCE OF THE SNOWPLOW

MAINTENANCE EVERY 8 WORKING HOURS	MAINTENANCE EVERY 150 WORKING HOURS	MAINTENANCE AT THE END OF THE SEASON
Check all bolt connections and hydraulic connections and tighten, if required.	Check all bolt connections and tighten, if required.	Check all bolt connections and tighten, if required.
Check that there are no leakages in the hydraulic system. If required, tighten the connections of the hydraulic parts and hose ends.	Lubricate all grease points: include rotary and lifting bearings of the flap, parallelogram bearings. Lubricate the adjustment mechanism in case of slide shoe.	Check that there are no leakages in the hydraulic system. If required, tighten the connections of the hydraulic parts and hose ends.
Check the condition of the blades and fastenings. If necessary, adjust or replace the blades.	Check the condition of the blades and fastenings. If necessary, adjust or replace the blades.	Spray the zinc parts, hydraulic valves and the ends of hoses of the plow with preservative wax.
X	X	Lubricate all lubrication areas. Cover the protruding adjustment areas of the inner tube wheel mechanism and support wheels with grease or wax.
X	X	Check the snowplow visually and identify whether there are parts that need replacing.
X	X	Repair any paint damage.
X	X	Pull in the cylinder piston rod or preserve it with appropriate grease.
X	X	Let the plow be open to winds, but protect it from rain and sun.

5. WARRANTY CONDITIONS OF THE PRODUCT

- The Seller gives the Product a guarantee for a term of 12 (twelve) months. The guarantee term starts upon delivery of the Product to the Buyer and the time of delivery is the date indicated in the deed of delivery and receipt or CMR.
- The guarantee covers the elimination by the Seller of any production, material or construction defects detected in the Product or details thereof during the guarantee period. The Seller is obligated to replace the defective Product with a new one only if the repairing of the Product or a detail or replacing of a detail is not possible.
- The Buyer undertakes to inform the Seller in writing of any defects detected during the guarantee term within seven (7) calendar days as of learning of the defect, describing the defect in sufficient detail.
- The Seller is obligated to carry out an expert assessment to identify the causes of the defect within fourteen (14) working days after the receipt of the written notice. In the event of a defect covered by the guarantee the Seller eliminates it within twenty (20) working days after the expert assessment.
- The performance of repair work under the guarantee takes place at the delivery address specified in the Order Confirmation. Major repairs are made in the territory of the Seller. The cost of transportation of the Product to the place of guarantee repairs is borne by the Buyer. The Buyer bears the costs of repairs exceeding the terms and conditions of guarantee repairs and the transportation costs.
- The following defects are not covered by the guarantee:
  - defects arising from the natural wear and tear of the Product;
  - defects arising from the characteristics or damages of the road cover;

- defects arising from the use of the Product in conflict with its technical conditions, security rules and purpose;
- defects arising from disregarding the rules of maintenance of the Product;
- defects arising from a traffic accident;
- defects of which the Buyer has not informed the Seller in writing within seven (7) days as of the emergence of the defect and/or whereby the Buyer has not given the Seller the chance to identify the cause of the defect in accordance with the Agreement.
- to the extent whose expansion the Buyer could have reasonably prevented.

- The Product guarantee term terminates before the prescribed time as of the time when:
  - the Product has been independently repaired, without coordinating it with the Seller in writing beforehand;
  - the constructions of the Product have been changed, additional equipment has and/or spare parts have been installed without coordinating it with the Seller in writing in advance.
- If the Seller, in spite of repeated written inquiries by the Buyer, fails to perform its guarantee obligations arising from the Agreement, the Buyer shall have the right to eliminate the Product's defect at the Seller's expense. The Buyer must inform the Seller in writing at least five (5) working days before the replacement or repairing of a defective Product and submit to the Seller a calculation of the presumable reasonable costs.
- The Buyer may withdraw from the Agreement and demand that the Product be taken back and the Purchase Price refunded only if the defect cannot be eliminate or the part cannot be replaced and if replacement of the defective Product with a new Product would not produce the results that would allow for the purposeful use of the Product.
- The Product or a part thereof replaced during the guarantee term is covered by the guarantee until the expiry of the overall guarantee term of the Product.